UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/897,495	07/03/2001	Rauf Izmailov	A7870	2079

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EXAMINER
TSEGAYE, SABA

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 January 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *10* is/are allowed.

6)☒ Claim(s) *1-4,9 and 11-16* is/are rejected.

7)☒ Claim(s) *5-8 and 17-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This Office Action is in response to the amendment filed on 01/04/06. Claims 1-20 are

pending. Claim 10 is allowed. Claims 5-8 and 17- 20 are objected; and claims 1-4, 9 and 11-16

are rejected.

Claim Rejections - 35 USC § 103

2.   Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suominen (WO

99/65195) in view of Meempat et al. (US 6,778,496).

Suominen discloses a method of generating an optimal path in a domain (1), comprising:

estimating a traffic volume of the domain (page 3, lines 18-34; page 5, lines 3-17);

constructing a traffic matrix in accordance with the estimated traffic volume (page 5,

lines 3-17);

computing a provisioning route for each non-zero element of the traffic matrix, and the

provisioning route is open to alteration (page 5, line 3-page 7 line 37); and

readjusting the traffic matrix in response to the computed provisioning route (page 5,

lines 3-17).

Suominen does not disclose wherein the method is performed for at least one class in

descending order of priority.

Meempat teaches selecting a path through a network based on combination criteria of

having smaller bottleneck link utilization and having fewer links compared to other paths. Each

path is comprised of links that are adapted to discriminate between different classes of packet

streams.

It would have been obvious to one ordinary skill in the art to modify Suominen's method

to perform for at least one class in descending order of priority, as taught by Meempat. The

motivation is more integrated and efficient system that provides quality of service guarantees to

packet streams entering the network and serves customer demand with high priority before

servicing customer demand with low priority.

3.   Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meempat et

al. in view of Conway et al. (US 6,061,331).

Regarding claim 1, Ahuja discloses a method of generating an optimal path in a domain,

comprising:

estimating a traffic volume of the domain (performance monitoring and inference

component measures the performance of specific path available to a set of sub-networks (column

5, lines 5-15));

constructing a traffic matrix in accordance with the estimated traffic volume (the

performance monitoring and interference component 102 generates a table (*a table is a matrix of*

which next-hop will be used to reach any given prefix (column 12, lines 38-48)) of each type of

performance measured or inferred for each available path to each destination (column 5, lines 5-

25));computing a provisioning route for each non-zero element of the traffic matrix; and

readjusting the traffic matrix in response to the computed provisioning route (column 15, line 8-

column 16, line 14). Further, Ahuja discloses that routing optimization component 104 has a

great deal of flexibility in routing including, but not limited to, taking into account routing

decisions based on optional levels or qualities of service.

However, Ahuja does not disclose wherein the method is performed for at least one class in descending order of priority.

Meempat teaches selecting a path through a network based on combination criteria of having smaller bottleneck link utilization and having fewer links compared to other paths. Each path is comprised of links that are adapted to discriminate between different classes of packet streams.

It would have been obvious to one ordinary skill in the art to modify Ahuja's method to perform for at least one class in descending order of priority, as taught by Meempat. The motivation is more integrated and efficient system that provides quality of service guarantees to packet streams entering the network and serves customer demand with high priority before servicing customer demand with low priority.

Regarding claim 2, Ahuja discloses the method wherein the domain comprises one of an IP backbone network having a plurality of core nodes connected via logical links to gateway (106) nodes of neighboring domains and at least one bypass node connected to at least one of the core nodes (see figs. 17, 18; column 18, lines 49-67).

Regarding claim 3, Ahuja discloses the method further comprising evaluating cost benefits of reversing a path of at least one previously provisioned (column 15, line24-column 16, line 14).

Regarding claim 4, Ahuja discloses the method further comprising maximizing a traffic acceptance rate, and minimizing a hop-bandwidth product (column 12, lines 45-48).

4.   Claims 11, 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Meempat et al. (6,778,496) in view of Ahuja et al. (6,981,055).

Claims 11, 14 and 15, Meempat discloses, in fig. 1, a plurality of links (16, 18) that

couple receiving and transmitting edge nodes (12, 14) to one another, each of the links having a

maximum capacity (column 4, line 46-column 5, line 35), wherein an optimal path is calculated

for a current suboptimal path by resetting a previously calculated path if a cost of the resetting

step for the previously calculated path is less than a cost of suboptimality for the current

suboptimal path (a cost metric in ach path status message is updated at the intermediate nodes as

the message progress along its defined path. Based on the final cost metric values collected upon

receipt of the status messages at the respective path edges). Further, Meempat discloses that each

of the plurality of routers is adapted to select an optimum path through the network in response

to receipt of a packet stream admission request. However, Meempat dose not disclose a plurality

of edge nodes that one of receive and transmit a prescribed amount of traffic in accordance with

an SLA.

Ahuja teaches that routing optimization component generates routing tables based on

path characteristics provided by performance monitoring and other information such as the

amount of traffic, the capacity available to each next-hop and on the economic agreements with

backbone providers or others (column 11, lines 51-62; column 14, lines 35-40; Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify Meempat's edge nodes to receive and transmit a prescribed amount of

traffic in accordance with the SLA, as taught by Ahuja. The motivation is more integrated and

efficient system that offers a customer a guarantee as to the quality of the service and security.

Regarding claim 12, Meempat discloses the network wherein the network comprises a

Diffserv network and the capacity comprises bandwidth (column 5, lines 7-11).

Regarding claim 16, Meempat in view of Ahuja discloses all the claim limitations as

stated above. Further, Meempat does not disclose constructing a traffic matrix in accordance

with an estimated traffic volume.

Ahuja teaches that performance monitoring and inference component generates a table (*a*

table is a matrix of which next-hop will be used to reach any given prefix (column 12, lines 38-

48)) of each type of performance measured or inferred for each available path to each destination

(column 5, lines 5-25).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify Meempat's apparatus to utilize a system where traffic matrix constructed in

accordance with the estimated traffic volume, as taught by Ahuja. The motivation is more

integrated and efficient system that provides knowledge of source-destination traffic demands,

thereby increasing route optimization while maintaining required performance level.

5.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahuja in view of

Meempat as applied to claim 1 above, and further in view of Beshai et al. (US 6,339,488).

Ahuja in view of Meempat discloses all the claim limitations as stated above except for

optical network and capacity comprises optical wavelength. Beshai teaches a fully meshed

telecommunications network in which an optical dual ring is used as the core transport network

and carries wavelength multiplexed optical signal. It would have been obvious to one of ordinary

skill in the art at the time the invention was made to modify the teaching of Ahuja in view of

Meempat, by replacing the network with the optical network, as taught by Beshai. Such

modification would have been to enable Ahuja in view of Meempat's method of routing to be

utilized in the well-known optical network, which is a change in field of use and involves only

routine skill in the art.

6.   Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meempat in view

of Ahuja as applied to claim 11 above, and further in view of Beshai et al. (US 6,339,488).

Meempat in view of Ahuja discloses all the claim limitations as stated above except for

optical network and capacity comprises optical wavelength. Beshai teaches a fully meshed

telecommunications network in which an optical dual ring is used as the core transport network

and carries wavelength multiplexed optical signal. It would have been obvious to one of ordinary

skill in the art at the time the invention was made to modify the teaching of Meempat in view of

Ahuja, by replacing the network with the optical network, as taught by Beshai. Such

modification would have been to enable Meempat in view of Ahuja's method of routing to be

utilized in the well-known optical network, which is a change in field of use and involves only

routine skill in the art.

Allowable Subject Matter

7.   Claims 5-8 and 17-20 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims.

8.   Claim 10 is allowed.

Response to Arguments

9.   Applicant's arguments with respect to claims 1-20 have been considered but are moot in

view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The

examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Doris To can be reached on (571) 272-7629. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
March 16, 2006

JOHN PEZZLO
PRIMARY EXAMINER